REMARKS/ARGUMENTS

Claims 1-40 were previously pending in the application. Claim 12 has been amended to correct a typographical error. Claim 13 and portions of the specification and Abstract have also been amended herein. The Applicant hereby requests further examination and reconsideration of the application in view of these Amendments and Remarks.

In paragraphs 1-2 of the Action, the Examiner objects to the Abstract as exceeding 150 words. Applicant has redacted the Abstract herein to less than 150 words to overcome this objection.

In paragraph 3 of the Action, the Examiner objects to the specification at p. 6, line 24; Table 2, column 1; and p. 26, lines 18-24. The specification has been amended herein to overcome the objections to the specification at p. 6, line 24 and Table 2, column 1, in the manner suggested by the Examiner. However, regarding the objection to p. 26, lines 18-24, this referenced portion of the specification does not discuss inter-demand and intra-demand sharing, and Applicant is unable to determine the actual portion of the specification to which the Examiner intends to refer. Notwithstanding, Applicant respectfully submits that the concepts of inter-demand and intra-demand sharing are fully explained and discussed in the specification from p. 8, line 19, to p. 9, line 3, and Applicant believes that no amendment to the specification is necessary in this regard.

In paragraph 4 of the Action, the Examiner objects to claim 13 as being of improper dependent form. Accordingly, claim 13, the text of which was inadvertently omitted at the time of filing, has been amended to overcome this objection. Support for claim 13 is found in claim 31, and claim 13 is believed to be patentable over all of the references cited by the Examiner for the reasons argued below with respect to claim 1, as well as for its own additional limitations.

In paragraph 5 of the Action, the Examiner rejects claims 1-3, 5-7, 9-11, and 13 under 35 U.S.C. §103(a) as being unpatentable over the "disclosed summary of invention" of Joshi, U.S. Patent No. 5,317,566 ("Joshi") in view of "prior art (background of invention) admitted by Joshi." In paragraph 6, the Examiner rejects claim 4 under 35 U.S.C. §103(a) as being unpatentable over Joshi in view of Iwata, U.S. Patent No. 6,026,077 ("Iwata"). In paragraph 7, the Examiner rejects claim 8 under 35 U.S.C. §103(a) as being unpatentable over Joshi in view of Iwata. In paragraph 8, the Examiner rejects claim 18 under 35 U.S.C. §103(a) as being unpatentable over Joshi in view of Hsu, U.S. Patent No. 6,363,319 ("Hsu"). In paragraph 9, the Examiner rejects claim 19 under 35

U.S.C. §103(a) as being unpatentable over Joshi in view of Hsu. In paragraph 10, the Examiner rejects claims 20, 24-26, and 28-30 as being unpatentable over the "disclosed summary of invention" of Joshi in view of "prior art (background of invention) admitted by Joshi." In paragraph 11, the Examiner rejects claim 21 under 35 U.S.C. §103(a) as being unpatentable over Joshi in view of Hsu. In paragraph 12, the Examiner rejects claim 22 under 35 U.S.C. §103(a) as being unpatentable over Joshi in view of Hsu. In paragraph 13, the Examiner rejects claim 23 under 35 U.S.C. §103(a) as being unpatentable over Joshi in view of Iwata. In paragraph 14, the Examiner rejects claim 27 under 35 U.S.C. §103(a) as being unpatentable over Joshi in view of Iwata. In paragraph 15, the Examiner rejects claim 37 under 35 U.S.C. §103(a) as being unpatentable over Joshi in view of Hsu. In paragraph 16, the Examiner rejects claim 38 under 35 U.S.C. §103(a) as being unpatentable over Joshi in view of Hsu. In paragraph 17, the Examiner rejects claim 39 under 35 U.S.C. §103(a) as being unpatentable over Joshi in view of Hsu. In paragraph 18 of the Action, the Examiner rejects claim 40 as being unpatentable over Joshi in view of Iwata and Hsu. For the following reasons, the Applicant submits that the pending claims are all allowable over the cited references.

Regarding the rejection of claim 1, Applicant respectfully submits that this rejection has been made in error. Joshi discloses a method for selecting a least-cost route from an originating node to a destination node in a distributed digital communication network. (Col. 1, lines 54-66.) In the method of Joshi, to save time in establishing the least-cost path from an originating node to a destination node, the attributes of the various links are stored in memory at the originating node, and a least-cost path from the originating node to a destination node is calculated in response to a connection request and stored in memory. (Abst.; col. 1, line 67 – col. 2, line 28.) Then, when a subsequent connection request to any destination node requires the same link attributes as the least-cost path already stored in memory, that same least-cost path is used if it is still operational. (*Id.*) However, Joshi certainly does not teach, disclose, or suggest each and every element of claim 1. Claim 1 recites:

> 1. A method of routing data through a network having a plurality of nodes interconnected by a plurality of links represented by a graph, the method comprising the steps of:
>
> (a) receiving a path request for routing the data between a source node and a destination node in the network based on a demand;

(b) reversing the links in the graph to generate paths from the destination node to nodes along reverse paths to the source node;

(c) performing shortest-path computations for portions of the reverse paths to generate weights for potential active-path links, wherein each weight of a link in a reverse path is based on a number of reverse paths in which the link is included; and

(d) repeating the shortest-path computations of step (c) for the graph from the destination to the source using the weighted links to generate an active path satisfying the path request, wherein each link in the active path has a defined back-up path.

Step (b) of claim 1 involves reversing the links in a graph to generate a plurality of paths from the destination node along reverse paths to the source node. The Examiner points to col. 1, lines 40-42 of Joshi as "anticipating" this aspect of claim 1, since this portion of Joshi discloses that the second step of the shortest-path-first (SPF) algorithm is determining a route with the shortest transmission distance to a source node by tracing backwards from the destination node. Accordingly, as recognized by the Examiner, this referenced portion of Joshi does not represent a step in the invention of Joshi, but rather a step in the admitted prior art to the invention of Joshi. In fact, as Joshi states, "[t]he invention is particularly advantageous in that it gains speed over the prior art SPF algorithm *by completely eliminating anything comparable to the second step of the SPF algorithm*." (Col. 3, lines 24-27, emphasis supplied.) Since the method of Joshi actually teaches away from step (b) of Applicant's claim 1, it is respectfully submitted that Joshi's admitted prior art cannot properly be combined with Joshi's disclosed invention under 35 U.S.C. §103(a) to make out a *prima facie* case of obviousness. *See In re Geisler*, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997).

Moreover, Joshi, the only reference cited in this obviousness rejection, fails to teach, disclose, or suggest each and every element of claim 1. Step (c) of claim 1 recites "performing shortest-path computations for portions of the reverse paths to generate weights for potential active-path links, wherein each weight of a link in a reverse path is based on a number of reverse paths in which the link is included." Applicant respectfully submits that this step is nowhere found nor suggested in Joshi. The Examiner refers to col. 2, lines 34-40 of Joshi, which explains that

> [i]n various embodiments of the invention, least cost calculations are based upon the cost of using specific transmission links. Link cost is calculated, taking into account the link bandwidth already allocated for transmission and the total bandwidth capacity of the link. The cost of a route is determined by adding the costs of all links that are contained within such a route.

Accordingly, Joshi teaches that link cost, or weight, is calculated based on bandwidth allocation for, and capacity of, a given link. Quite to the contrary, step (c) of claim 1 requires (i) that weight be calculated based on shortest-path computations, and (ii) that each weight of a link in a reverse path be calculated based on a number of reverse paths in which the link is included. Neither (i) nor (ii) is disclosed, taught, or suggested anywhere in Joshi, and therefore, it cannot be said that Joshi renders claim 1 obvious.

In fact, step (d) of claim 1 recites repeating the shortest-path computations of step (c) for the graph from the destination to the source using the weighted links to generate an active path satisfying the path request. Since the performance of step (c) is nowhere disclosed, taught, or suggested anywhere in Joshi, the repetition of step (c) using the weighted links to generate an active path satisfying the path request, by definition, cannot be disclosed, taught, or suggested anywhere in Joshi.

For the foregoing reasons, the Applicant submits that the obviousness rejection of claim 1 based on Joshi is improper and should be withdrawn.

Iwata teaches a failure restoration system for a large-scale network, wherein the system uses distributed hierarchical routing means capable of exchanging, in a distributed and hierarchical manner, link state parameters between nodes in a connection-oriented network having a plurality of subnetworks. (Col. 2, lines 12-17.) The link state parameters include information about a bandwidth of a link and delay to discover a hierarchical topology, and the routing means is adapted to set up a main path and to have previously determined an alternate path for the main path. (Col. 17-22.)

Hsu teaches a method and apparatus for selecting a route for a flow from a plurality of network paths. (Col. 1, lines 41-42.) Cumulative costs for a plurality of candidate paths from the network paths are determined using a cost bias, which is dynamically calculated based on at least one of a flow attribute and a path attribute. (Col. 1, lines 43-47.) An optimal path is then selected which has a minimum of the cumulative costs, and the optimal path corresponds to the selected route. (Col. 1, lines 47-49.)

In view of the foregoing, the Applicant submits that claim 1 is allowable over the cited references. For similar reasons, the Applicant submits that claims 20 and 40 are also allowable over the cited references. Since the rest of the claims depend variously from claims 1 and 20, it is further

submitted that those claims are also allowable over the cited references. The Applicant submits therefore that the rejections of claims under 35 U.S.C. §103(a) have been overcome.

In the event that the Examiner believes that this response does not place the application in condition for allowance, the Applicant requests a telephonic interview between the Examiner and the Applicant's attorney Kevin Drucker to discuss this amendment. The Applicant requests that the Examiner call Mr. Drucker (215-557-6659) to arrange a convenient time for such an interview.

In view of the above amendments and remarks, the Applicant believes that the pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

Respectfully submitted,

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